

I CLAIM:

1. A method of providing TV signals or multiple of subscribers and bidirectional telephonic communications to a multiplicity of subscribers through a single optical fiber comprising the steps of:

5 transmitting light at a first wavelength carrying telephonic signals from a first plurality of telephone related devices and at a second wavelength carrying TV signals from a TV signal source through an optical fiber from a first end to a second end;

10 receiving said first wavelength of light and generating first electrical signals within a first frequency band and representative of said plurality of telephonic signals;

receiving said second wavelength of light and generating second electrical signals within a second frequency band and representative of said TV signals;

15 transmitting said telephonic electrical signals to a plurality of telephone related devices and said second electrical signals to a plurality of TV signal receiving devices;

generating a plurality of return electrical telephonic signals at said first frequency band representative of return telephonic information and a plurality of TV related electrical signals at a third frequency band representative of TV related information from said plurality of subscribers;

20 multiplexing said electrical signals carrying said return telephonic signals at said first frequency band and said TV related electrical signals carrying said TV related information at said third frequency band;

25 receiving said multiplexed electrical signals and generating light at said first wavelength representative of said return telephonic signals and said TV related information;

transmitting light at said first wavelength and carrying said return telephonic signals and said TV related information through said optical fiber from said second end to said first end;

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receiving said light carrying said return telephonic signals and said TV related information and generating a plurality of third electrical signals representative of said return telephonic signals and a plurality of fourth electrical signals representative of said TV related information; and

transmitting said third electrical signals to said first plurality of telephone related devices and said fourth electrical signals to said TV signal source.

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2. The method of claim 1 wherein said first wavelength of light is 1310 nanometers and said second wavelength of light is 1550 nanometers.

3. The method of claim 1 wherein said highest frequency of said first frequency band is less than about 60 KHz.

4. The method of claim 3 wherein said third frequency band is between about 5 and about 50 MHZ.

5. The method of claim 4 wherein said second frequency band is between about 50 MHZ and about 800 MHZ.

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6. A method of communicating comprising the steps of:
- transmitting light at a first wavelength carrying first information from a first source and a second wavelength carrying second information from a second source through an optical fiber from a first end to a second end;
 - 5 receiving said first wavelength of light and generating first electrical signals at a first frequency band and representative of said first information;
 - receiving said second wavelength of light and generating second electrical signals at a second frequency band and representative of said second information;
 - 10 transmitting said first electrical signals to a first device and said second electrical signals to a second device;
 - generating third electrical signals at said first frequency band representative of third information and fourth electrical signals at a third frequency band representative of fourth information;
 - 15 multiplexing said third electrical signals and said fourth electrical signals;
 - receiving said multiplexed electrical signals and generating light at said first wavelength representative of said third and fourth information;
 - transmitting light at said first wavelength carrying said third and fourth information through said optical fiber from said second end to said first end;
 - 20 receiving said light carrying said third and fourth information and generating fifth electrical signals representative of said third information and sixth electrical signals representative of said fourth information; and
 - transmitting said fifth electrical signals to said first source and said sixth electrical signals to said second source.
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7. Communication signal transmission apparatus for carrying unidirectional TV signals downstream from a source to a first user and for carrying TCM (time compression modulation) bidirectional telephonic signals between said first user and a second user comprising;

5 an optical fiber suitable for simultaneously carrying two distinct wavelength of light by WDM (wave division multiplexing) between a first location and a second location;

10 conversion apparatus located at said second location and connected to said optical fiber, said conversion apparatus converting optical signals at said first wavelength of light and carrying said unidirectional TV signals to electrical TV signals at a first frequency, converting optical signals at said second wavelength of light and carrying said TCM bidirectional telephonic signals to electrical telephonic signals, and converting electrical telephonic signals to TCM bidirectional telephonic optical signals at said second wavelength of light;

15 a first electrical conductor for receiving and carrying TV signals at said first frequency from said second location to a TV signal user device;

TV related signals at a second frequency generated by said TV signal user device connected to said first electrical conductor and transmitted from said TV signal user device at said second location;

20 a pair of electrical conductors for receiving and carrying said bidirectional telephonic signals between said second location and a user device;

a multiplexer for combining said TV related signals and said bidirectional telephonic signals to produce said electrical telephonic signals converted to optical signals at said second wavelength of light by said conversion apparatus;

25 a TV signal source connected to said optical fiber at said first location to modulate said first wavelength of light;

a second converting device for converting electrical signal to optical signals at said first wavelength of light and optical signal at said second wavelength of light to electrical signals; and

30 a second telephonic signal user device for sending and receiving said bidirectional telephonic signals.

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